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**Cc:** [Negron, Nesmarie](#); [Kogan, Joshua](#)  
**Subject:** OW Management Report for Hurricanes Harvey, Irma and Maria for 9/27/2017  
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Attached and pasted below is the OW Management Report for Hurricanes Harvey, Irma and Maria for 9/27/2017.

Jeff Fencil  
EOC Water Desk  
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#### **EPA HQ:**

Water Desk Staffing for the coming week:  
Wednesday 9/27-Thursday 9/28: Jeff Fencil  
Friday 9/28: Kevin Tingley  
Saturday 9/29: Kevin Tingley  
Sunday 9/30: Nushat Thomas

#### **Notable Updates**

- Region 2, Puerto Rico: Caribbean Environmental Protection Division (CEPD) began field inspections on 9/26 and visited several Puerto Rico Aqueducts and Sewers Authority (PRASA) plants near San Juan. Assessment teams will also go out 9/27 to visit 5 additional PRASA plants. Of PRASA's total 52 total plants, 9 are operational, 19 are non-operational, and 24 have an unknown operational status.
- Region 2, St Croix: A joint EPA and Department of Planning and Natural Resources (DPNR) team sampled 9 public drinking water systems on 9/25/17, with 20 more sampled on 9/26/17. These facilities are up and operating, and are part of approximately 150 total facilities on the island. Processed (Colilert) and recorded the results of the 9 samples collected on 9/25 show positives for Ecoli for 3 of the systems. Disinfection of these cistern based community systems is required.
- Region 4, Florida: the US Army Corps of Engineers (USACE) and EPA Water Protection Division (WPD) continue to assist Florida Department of Environmental Protection (FDEP) in assessing the status of drinking water and wastewater facilities. Water team members in the EPA Region 4 office have conducted 183 assessments, leaving 71 that appear to need a site visit. The Key Largo Water Team completed FDEP-assigned field assessments and met with utility personnel regarding the operational status of their drinking water system. The Naples Water Team completed FDEP-assigned assessments with visits to two public water systems and a wastewater system.
- Per the Florida Department of Health's website, of the 478 Boiler Water Notices issued since September 11, 380 of which have been rescinded and 98 active.

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## **Hurricane Maria and Hurricane Irma Update – Puerto Rico and US Virgin Islands**

On 9/27/2017 at 0200 EDT, Maria was located 145 miles east of Cape Hatteras, NC with maximum sustained winds of 70 (-10) mph, with higher gusts, and is moving north at 5 (-2) mph. Tropical-Storm-Force winds extend outward 230 (+25) miles from the center. A Tropical Storm Warning remains in effect from Bogue Inlet, NC to the NC/VA border, to include the Albemarle and Pamlico Sounds. A Storm Surge Watch is in effect from Cape Lookout to west of Ocracoke Inlet and north of Cape Hatteras to Duck, NC. A Storm Surge Warning is in effect for Ocracoke Inlet to Cape Hatteras. The USCG Station at Hatteras, NC reported sustained winds overnight of 39 mph, with gusts up to 47 mph.

On 9/20, The President signed Disaster Declarations FEMA-4339-DR for Puerto Rico (PR) and FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria. Additionally, the President has signed Emergency Declarations FEMA-3391-EM for Puerto Rico and FEMA-3390-EM for the Territory of the U.S. Virgin Islands for Hurricane Maria.

As of 9/27/17, the personnel information from the EPA re-deployment plan was provided to FEMA so flights and lodging needs can be coordinated for the first wave of EPA responders. Flights for EPA personnel continued to be postponed, as the priority is still the life-saving and life sustaining mission. We will keep pursuing FEMA flights, however we are also coordinating with the U.S. Coast Guard for possible flight space as they move people and equipment into the U.S. Caribbean. Suitable lodging on PR remains a challenge. We continue to pursue berthing space on the various FEMA supported vessels arriving in PR.

- Puerto Rico: 120 people (50 people on 9/24 + 50 people on 10/1 + 20 people on 10/7)
- St Croix: 88 people (20 people on 9/27 + 34 people on 9/30 + 34 people on 10/2)
- St Thomas: 68 people (34 people on 9/28 + 34 people on 10/2)

Region 2 continues to reach out and contact CEPD personnel post storm. In PR, communications are very difficult and a majority of employees have not yet been accounted for. As of 9/27/2017, the Director and Deputy Director have been able to account for 51 of 56 employees based in PR. In the USVI both employees are safe and in contact with EPA responders.

### **Local/State Activities**

#### **Puerto Rico:**

There is a 100% power outage in PR. The Director of Puerto Rico Electric Power Authority (PREPA) indicated that the power system is non-functioning. It faced severe and catastrophic structural damage in the distribution lines and it will take many months for repairs and reconstruction.

**No new updates on these dams.** USACE inspected Toa Vaca and Guayabal Dams and reported no structural damage; however, both dams are releasing at higher than normal levels. USACE assessment of the Guajataca Dam found the lower part of the concrete spillway slab has collapsed and the current section that is remaining appears to be undercut by approximately 15 feet. The dam is still intact but does need to be reinforced to ensure stability. The water level behind the dam needs to go down before a comprehensive assessment of the dam can be performed.

#### **U.S. Virgin Islands (USVI):**

Power outages for USVI include: St. Thomas: 19,574 (99%); St. John: 2,893 (100%); and St. Croix: 25,274 (90%). FEMA has indicated that there will be two power-supplied labs: one in St. Thomas

(supplied with a functioning generator) and one in St. Croix (pending generator installation).

Emergency call centers have been activated in both island districts (7 am - 11 pm daily). The call centers will be the primary means by which residents can report service interruptions as reconstruction and restoration takes shape. The Emergency Call Center number on St. Croix is 340-773-0150 and on St. Thomas - St. John, the number is 340-774-1424.

### **Federal Activities**

#### **FEMA:**

The USACE has received a mission assignment under ESF 3 for water and wastewater Subject Matter Experts (SMEs) to assess PRASA facilities in response to Hurricane Maria in Puerto Rico. USACE and EPA are coordinating a potential sub-tasking for EPA support similar to that done in Florida for Hurricane Irma.

The FEMA Regional Response Coordination Center (RRCC) in Colt's Neck NJ has transferred all operations from that location to the NRCC in Washington, D.C. Personnel are developing plans for the resumption of post-storm activities, including assessments at regulated facilities and NPL/Removal sites.

On 9/20/2017, The President has signed a Disaster Declaration FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria. On 9/20, The President has signed a Disaster Declaration FEMA-4339-DR for Puerto Rico.

### **EPA Region 2 Activities**

The Regional Emergency Operation Center (REOC) Planning and Operations Sections are using Hurricane Irma assessment plans to develop post-Hurricane Maria plans for the assessment of fixed facilities, Superfund sites, critical infrastructure, areas of special concern, and debris management. EPA's water assessment team arrived in St. Croix on 9/24/2017 to address drinking water needs and conduct wastewater assessments at facilities that service hospitals.

On 9/23/2017, EPA issued an order to FEMA and the Department of Defense (DOD) that provides direction on supplying of clean drinking water in the U.S. Virgin Islands in response to impacts to the island's drinking water system from Hurricane Maria and Hurricane Irma. The order authorizes FEMA and DOD to install and operate temporary water treatment units that will provide a supply of clean drinking water. The order is at

<https://response.epa.gov/sites/12403/files/USVI%20SDWA%20Order%20Sept%2023.pdf>.

The National Disaster Recovery Framework (NDRF) has not yet been activated in either PR or the VI.

### **Drinking Water and Wastewater System Status**

#### **Puerto Rico:**

CEPD and CWD have continued phone calling on the 300 non-PRASA drinking water facilities; however, as many of the facilities are remote, contact has yet to be made with a facility. Voice messages have been left.

CEPD and CWD awaiting PRASA drinking water and wastewater facility operational status report, expected 9/26. CEPD began field inspections on 9/26 and visited the following PRASA plants near San Juan: Carolina WWTP, Puerto Nuevo WWTP, and Bayamon WWTP. Assessment teams will also go out 9/27 to visit the following PRASA plants: Dorado WWTP, Vega Baja WWTP, Sergio Cuevas WTP, La Plata WTP, and Guaynabo WTP. CEPD expects to assess more facilities on 9/28.

PR also currently has an island-wide boil water order. Of PRASA's total 52 total plants, 9 are operational, 19 are non-operational, and 24 have an unknown operational status.

Federal Aviation Administration (FAA) touched base with CWD on 9/25, indicating that they wish to drill a well at one of their facilities near the San Juan Airport to supply water to their HVAC systems

and also for the staff of 40 to 60 people. EPA is waiting for more information from the FAA.

**Virgin Islands:** <http://www.viwapa.vi>

On 9/23/17, EPA Region 2 issued an order pursuant to the SDWA that authorized FEMA/DOD to pump drinking water to the USVI. FEMA/DOD are working to deploy 4 Reverse Osmosis (RO) units in St Croix to deliver drinking water to the following impacted areas (Stoney Ground, Cane Bay, Altima and Cramer Park). The EPA Order expires on 10/8/17. Tentative locations for the RO units have been selected on the Western side of the island, but treatment has not started.

VI DPNR asked EPA to conduct sampling, especially bacteria, and analysis. They also would like any ice being brought to the USVI analyzed for bacteria, at a minimum. An EPA water sampling team arrived on St. Croix on 9/24 and will assist DPNR in this regard.

For 9/27, EPA will be working at the DPNR Office in Frederickstead to develop drinking water facility target lists for St. Croix as well as St. Thomas, and St. John. In addition to developing the target lists, EPA and DPNR will perform some sampling and assessments at several facilities.

The REOC was able to have generators shipped on to the USVI on 9/23/17. They will be used to help power the DPNR and VI Water and Power Authority (WAPA) labs. Sampling and analysis will take a minimum of 24 hours once the St. Croix lab is up and running.

St. Croix: Per the VIWAPA website, there are three days of water storage. Additional storage is being built slowly.

A joint EPA and DPNR team sampled 9 public drinking water systems on 9/25/17, with 20 more to be sampled on 9/26/17. These facilities are up and operating, and are part of approximately 150 total facilities on the island of St. Croix. Samples will be analyzed for Total and fecal coliform and ecoli utilizing Colilert kits. Processed (Colilert) and recorded the results of the 9 samples collected on 9/25/2017. Results show positives for Ecoli for 3 of the systems: St. Croix Mutual Homes (2) and Lewis E. Brown Apartments. Disinfection of these cistern based community systems is required.

The Concordia potable water pump station on St. Croix is on line. Overnight, the Kingshill tank should begin to build storage and the west end of the island should begin to receive potable water service. Seven Seas water production facility is online and stabilized after weekend work corrected high voltage challenges. The Richmond and Contentment pump stations are online and functioning normally as potable water service is being provided to a growing number of St. Croix residents.

St. John: Per the VIWAPA website, there are four days of water storage. Additional storage is being built slowly.

St. Thomas: Per the VIWAPA website, there are three days of storage. Additional storage is being built slowly.

All areas east of town have been restored with potable water service. Work will continue to restore the Havensight area and more of Estate Bakkeroe. The Bergrs Home pump station had been repaired but suffered damage to its weather head preventing the station from being re-energized with electrical service.

Water production at the St. Thomas Seven Seas resumed at max capacity on September 25th.

There is no information on wastewater facility status in USVI at this time.

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### **Hurricane Irma Update – Florida and Georgia**

#### **Local/State and other Federal Agency Activities**

All Region 4 State EOCs, with the exception of Florida, are back to normal operations. The EPA Region 4 REOC remains at Level 3 activation.

The FEMA Region IV RRCC transitioned from Level II (full activation) to normal operations. All members of the RRCC were released, including staff under ESF-10.

#### **EPA Region 4 Activities**

The EPA Region 4 WPD received funding totaling \$75,000 under an ESF-3 MA sub-task to support the USACE drinking water and wastewater facility assessments. The WPD continues to coordinate with the FDEP and the USACE. The USACE request for additional ESF-3 support has been fulfilled.

The Region 4 Facility Assessment Support Team (FAST), completed 934 call-down assessments as of 9/21/2017. EPA Water Team performed an assessment of the Waste Water Treatment Plant(WWTP) in Everglades City on 9/21/2017. The USACE/EPA Water Team completed assessments in Everglades City and redeployed, 9/22/2017, to Key Largo to assess the WWTP. The USACE/EPA Water Team inspected booster stations along the drinking water pipeline to Key West.

On 9/25/2017, FDEP requested EPA's FAST assistance in assessing the status of 1,255 non-community public water systems. For consistency, FAST conducted a Just-in-Time Training, to outline procedures for conducting phone-assessments of non-community drinking water systems. Assessment activities began on September 26.

As of 9/27/2017, the USACE and EPA WPD continue to assist FDEP in assessing the status of drinking water and wastewater facilities. Water team members in the EPA Region 4 office have conducted 183 assessments, leaving 71 that appear to need a site visit. The Key Largo Water Team completed FDEP-assigned field assessments and met with utility personnel regarding the operational status of their drinking water system. The Naples Water Team completed FDEP-assigned assessments with visits to two public water systems and a wastewater system. Pending receipt of new assignments, EPA Water Team members will demobilize tomorrow (9/28).

### **Drinking Water and Wastewater System Status**

**Florida:** See tables below for damage assessment information for community drinking water systems and POTWs.

Boil water notice (BWN) or advisories are published on the Florida Department of Health's website (<http://www.floridahealth.gov/environmental-health/drinking-water/boil-water-notice.html>).

As of 0900 ET, 9/27/17, the website lists 478 BWNs issued since September 11, of which 380 have been rescinded, resulting in 98 active BWNs.

Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Florida				
	Large CWS (Over 3,300)		Small CWS (under 3,300)	
	# Systems	Population Served	# Systems	Population Served
Operational:	394	19,205,380	1,192	683,098
Partially Operational:	2	83,084	15	16,284
Non Operational:	0	0	3	255
Unknown:	0	0	34	10,916
Totals:	396	19,288,464	1,244	710,553
Boil Water Notices	98 (478 issued – 380 rescinded)			
<b>Comments:</b> Data is compiled from the State of Florida's StormTracker system. The inventory of public water systems in StormTracker consists of all 1,630 Community Water Systems (CWS) and 11 non-community public water systems regulated by the State. These facilities were identified by Florida as the most critical for operational status determinations following major disasters. For convenience, all 1,641 facilities are reported as “CWS” in this table.				
<b>Operational:</b> Facility producing drinking water for greater than 90% of customers under normal operating conditions				
<b>Partially Operational:</b> Facility producing drinking water under adverse conditions and/or supplying less than 90% of customers				

**Non Operational:** Facility not producing or supplying drinking water

**Unknown:** Status of facility unknown at this time

Total Number of Publicly-Owned Wastewater Treatment Plants (POTWs) All Florida Counties			
	NPDES Permitted Facilities		State Permits (Non-NPDES)
	POTW	Non-POTW (Industrial)	
Operational:	143	242	1,711
Partially Operational:	2	1	40
Non Operational:	0	0	92
Unknown:	0	0	166
Totals:	145	243	2,009
<p>Comments: Data is compiled from the State of Florida's StormTracker system. The NPDES universe tracked in StormTracker represents a subset of the total inventory of NPDES permitted systems that are identified by the State of Florida as the most critical for operational status determinations following major disasters.</p> <p>This report shows that 99% of the POTWs are Operational, no change since last report of 99%. This report shows that 99% of the Non-POTW NPDES Permitted Facilities tracked in StormTracker are Operational, no change since last report of 99%.</p> <p><b><u>Operational:</u></b> Facility &amp; associated collection system is properly conveying, and effectively providing wastewater treatment, in accordance with applicable permit conditions and regulations. (Operating on full or backup generator power.)</p> <p><b><u>Partially Operational:</u></b> Facility and/or associated collection system is properly conveying and providing wastewater treatment at a compromised capacity, i.e. one or more treatment train components are non-operational, one or more lift stations are non-operational, etc.</p> <p><b><u>Non Operational:</u></b> Facility and/or associated collection system is not providing wastewater treatment in accordance with applicable permit conditions and regulations.</p> <p><b><u>Unknown:</u></b> Status of facility unknown at this time</p>			

**Georgia:** See tables below for damage assessment information for community drinking water systems (last update: 9/20/2017).

Total Number of Community Drinking Water Systems (CWS) and Total Population Served in Georgia		
	# Systems	Population Served
Operational:	186	7,203,619
Operational w/ Conditions:	8	53,917
Non Operational:	3	40,322
Unknown:	**	2,424,980
Totals:	1,749	8,917,820
Boil Water Notices	75 Boil Water Advisories reported to the SOC.	
<b>Comments:</b> Data is compiled from data collected by Georgia EPD drinking water staff, EPD regional offices and the ESF-3 Water Desk at the Georgia SOC. The inventory of public water		

systems in *Georgia* consists of all 1,749 Community Water Systems (CWS).  
\*\*EPD has provided status updates of all community water systems with surface water sources. All community water systems using ground water are being contact by EPD District Offices and associated resources requests are forwarded to the SOC ESF-3 desk. All community water systems using surface water as a source have been assessed.

***Operational:*** Facility producing drinking water for greater than 90% of customers under normal operating conditions.

***Operational with Conditions:*** Facility producing drinking water under consumer advisory, e.g., boil water advisories issued by water systems.

***Non Operational:*** Facility not producing or supplying drinking water

**Federally Recognized Tribes:**

No significant updates were provided by the Region 4 Tribes during the reporting period.



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## **Hurricane Harvey Update**

### **Federal Activities:**

Cost-share for response activities increased to 10% at midnight on September 22, 2017. Response efforts associated with Hurricane Harvey have transitioned to recovery.

### **EPA Region 6 Activities:**

Drinking water and wastewater assessment teams completed their emergency assessments of community water systems and have demobilized. The information below is from the Texas Commission on Environmental Quality website at <https://www.tceq.texas.gov/response/hurricanes>; last update was 9/22/17.

<b>Drinking Water</b>	<b>Number of Drinking Water Systems</b>	<b>Population</b>
Fully Operational	2,233	920,988
Boil Water Notices	46	14,446
Shutdown	5	1,088

<b>Wastewater and Sewage</b>	<b>Number of Wastewater Treatment Plants</b>
Fully Operational	1,719
Inoperable	9
Operating with Issues	25